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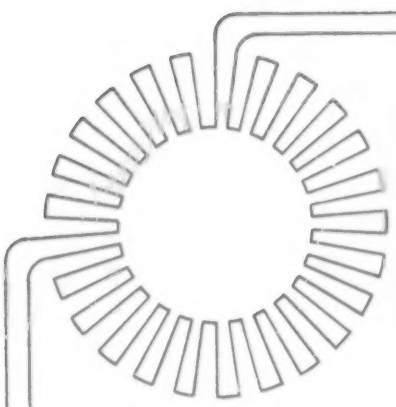

Center for Human Resource Research

Career Paths and Career Origins:
The Effect of First Job Industry on
the Attainments of Mature Men

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Abstract

The fundamental contention of this paper is that the industrial environment encompassing a worker's career origins has pervasive and irrevocable effects on his subsequent career developments. We argue that this is so even for workers who transfer to a new industrial setting. In developing this argument we explore the linkages that exist between industries, internal labor markets and career paths.

Empirically, we demonstrate that industry of first job is a significant and strong predictor of earnings and occupational SEI for workers late in their careers. This finding holds despite controls for a number of relevant human capital and other variables, including current job industry, and with various alternate universe restrictions.

The final sections of this paper explore the ways in which industries impact on careers. We find that these processes are complex and not well specified by current models of industrial organization. In conclusion, we argue that these results support the relevance of institutional environments in shaping career developments, and that industry is an appropriate level of aggregation at which these processes can be studied.

Career Paths and Career Origins: The Effect of First Job on the Attainments of Mature Men

I. INTRODUCTION

Recent work in stratification research has come increasingly to recognize the importance of institutional factors in determining the socioeconomic achievements of workers. Evidence has demonstrated that firm and industrial organizational attributes are significant determinants of earnings net of the individual worker's own human capital and areal and occupational controls. All these structural effects, however, are hypothesized to operate contemporaneously with a worker's employment tenure. Specifically, the labor force attainments of all workers in an institution are thought to be affected by its organizational features;[1] once a worker crosses an institutional boundary the situational attributes of his new work environment come into play, and those of his former presumably lose relevance.

The contention of this paper is that institutional structures also have a more fundamental and pervasive effect than that suggested by this scenario. We argue that the institutional, and in particular the industrial environment encompassing a worker's career origins shape his opportunity structures and thereby constrain and channel his subsequent career developments. Accordingly, these formative influences will continue to have an impact on socioeconomic attainments even for those who have transferred to a new industrial setting.

The theoretical backdrop for these ideas derives from the re-emergent literature on career-line analysis (see, for example, Spilerman, 1977). In this body of work, job transitions are viewed as components of coherent career lines. Emphasis is drawn to the linkages which exist between jobs

and the institutional features of the labor market which cause "typical" career progressions to emerge. Accordingly, it makes sense to view a worker's early work history as constraining or limiting his or her subsequent career development; internal labor market features which help determine the character of early job progressions should have effects on subsequent socioeconomic attainments which are irrevocable.

Focussing on the linkages between jobs in this fashion represents a departure from the prevailing paradigms for studying labor force attainment. Indeed, with the exception of a few early monographs (e.g., Form and Miller, 1949; Lipset and Bendix, 1952a; Lipset and Bendix, 1952b; Palmer, 1954), scant attention has been devoted in the empirical literature to analyses of job shift behavior. The dominant frameworks within which occupational and earnings attainments have been most recently studied are the status attainment model in sociology (see, for example, Blau and Duncan, 1967; Sewel et al., 1970; Alexander et al., 1975) and the human capital model in economics (e.g., Mincer, 1974; Becker, 1975). In both of these the emphasis is on identifying the role of the individual's ascribed or achieved attributes (including educational attainment, aspirations, and family background characteristics, among others) on eventual socioeconomic achievements. In recent years, this work has been complemented by analyses which focus on the role of various attributes of the work setting, including establishment size (Stolzenberg, 1978) and industrial organization (Beck, et al., 1978; Bibb and Form, 1977; D'Amico, 1980; Daymont, 1979). Still, with few exceptions (e.g., Sorenson, 1975), sociologists' inattention to the complex patterning of labor force attainment means that the ways in which labor

market structures constrain careers go unanalyzed. One premise of this paper is that career-line concepts can be usefully integrated into and can enrich models of socioeconomic attainment. One of our objectives is to demonstrate that such an integration is both feasible and worthwhile. Our effort to show the importance of career origins for subsequent socioeconomic success should be viewed in this light.

The outline of this paper is as follows. First, given the continuity which careers are presumed to exhibit, we argue that institutional features of the labor market which determine the character of career origins should have a pervasive impact on socioeconomic attainments even years later. That characteristic of career origins most relevant for these outcomes may be the extent to which early job progressions are "orderly" or hierarchical. We argue that this, in turn, largely covaries with industry of employment. In making this contention, we explore the linkages which exist between industries, career paths and internal labor markets. The first empirical section of this paper, then, attempts to demonstrate the importance of industry of first job for the occupational placement and earnings attainment of workers late in their careers. We show that these effects are significant and strong and operate net of the individuals' own attributes and net of their <u>current</u> industry of employment. Moreover, this finding proves to be remarkably robust and persists despite various universe restrictions. We next explore the linkages between first job and current job industry effects. We find that advantageous first job industries exert their impact on socioeconomic attainments at least partially by channeling workers into high-paying current job industries. Moreover, after noting a remarkable lack

of congruence between the first job and current job industry effects for specific industries, we conclude that the ways in which institutional structures impact on careers are complex and not well specified by current formulations of the operation of internal labor markets. The final empirical section tentatively demonstrates that industry growth rates are partly responsible for first-job industry effects. In discussing the preceding results, we conclude that career-line concepts can be usefully integrated into models of labor market behavior and that industry is one appropriate level of aggregation at which these processes can be analyzed.

II. CAREER PATHS, INTERNAL LABOR MARKETS AND INDUSTRIES

A. The Career-line Concept

The fundamental notion underlying career line analysis is that the labor market is not an open, homogeneous pool within which workers are free to move. Instead, a variety of factors operate to structure workers' career developments. These include the need for progressive development of job skills (Doeringer and Piore, 1971); the pervasiveness of occupation-specific training (Stolzenberg, 1975; Doeringer and Piore, 1971; Becker, 1975); union (Spilerman, 1977) or administrative rules regarding promotion or transfer, including seniority qualifications (Doeringer and Piore, 1979; Spilerman, 1977; Doeringer and Piore, 1971; Edwards, 1975). The net result is the existence of a finite number of regularly occurring, temporally ordered job progressions arising from each "port of entry," or entry-level position. These job progressions are variously called "career paths" or "career lines," and analysis of their characteristics and consequences constitutesprincipal tasks of career-line analysis.

B. Careers in Institutions

The relevance of career-line analysis for understanding the labor force achievements of workers derives from the considerable variation that exists in career attributes. Careers may vary with respect to manner of recruitment, number and position of entry portals, age-earnings profiles, and so on (Spilerman, 1977). For our purposes, a useful distinction can be drawn between what Spilerman calls "orderly" and "chaotic" career paths. We define an orderly career line as one whose constituent job progressions entail progressively greater levels of related job responsibilities and usually also remuneration--what Slocum (1966) and Hall (1975) mean by "careers." An instance of this would be exemplified by the work history of an employee who is steadily promoted through the ranks of a single firm's employment hierarchy. A chaotic career path, by contrast, lacks this directionality. In the extreme case, it would be represented by a worker's meandering through a sequence of job titles which bear no obvious interrelationship other than their empirical coincidence. To be sure, both orderly and chaotic career paths as defined here represent ideal types; any worker's actual career is likely to fall somewhere between these two poles. But this continuum bears obvious relevance for status attainment processes.

In understanding the development of orderly vs. chaotic careers, one must focus on the institutional contexts within which careers develop. Institutions impart character to careers by virtue of their implications for opportunity structures (Spilerman, 1977), and because rules regarding promotions and transfers between jobs are often administratively determined (Doeringer and Piore, 1971). Following Doeringer and Piore, we use the

term "internal labor markets" to describe these features of intra-institutional job structures.

As with career paths, internal labor markets consist of job progressions emanating from ports of entry, and vary with respect to their major characteristics, including the degree to which their constituent job sequences are hierarchically ordered. But despite their similarity, career paths and internal labor markets differ in one fundamental sense. Internal labor markets are properties of institutions; by contrast, career paths describe typical job progressions experienced by workers and usually cross institutional boundaries. They are therefore individual-level phenomena. This distinction between internal labor markets and career paths is often blurred.[2] But making a clear conceptual differentiation between them enables research to be explicitly directed on their interplay. This, in fact, may constitute the grounds upon which the translation of institutional processes to individuals' attainments can best be explored.

The interrelationship of internal labor markets and career paths constitutes a critical component of the argument being developed in this paper. Doeringer and Piore (1971) have already noted the role internal labor markets can play in structuring individuals' attainments. But their treatment generally discusses the issue as if workers' entire careers took place within a single internal labor market. Of course, they do note the linkages that exist <u>between</u> internal labor markets. But the implications for long-term career progressions are never made very clear. We believe this issue can best be investigated by the juxtaposition of internal labor market and career-line concepts.

The fundamental premise of this argument can be stated simply: careers develop within and have their major characteristics shaped by the usually multiple internal labor markets of which they are a part. Where career paths cross institutional boundaries, the several impinging internal labor markets all exert their separate impacts. Thus, given the linkages that exist between jobs in a career line, disadvantages incurred by starting one's career in an unstructured internal labor market cannot be overcome by simply transferring to a new institutional setting. If the port of exit from one's institution of career origin does not reflect a progressive development of job skills and responsibilities or levels of remuneration, the port of entry for one's new internal labor market will likely be located near the bottom of its job hierarchy. These considerations lead Spilerman to conclude: "The notion of a career-line is intimately associated with the view that the labor market is patterned--that determinable job sequences exist, common to the experiences of many workers, which can be understood in terms of the institutional features of this market" (Spilerman, 1977: 552).

The relevance of the institution surrounding career origin as a major factor shaping subsequent socioeconomic opportunities should now be clear. Thus, two workers may begin their careers with identical qualifications and equivalent skills; their first jobs may even be quite comparable in terms of earnings and job duties and responsibilities. They may even end their careers in similar institutional environments. But if one of them began his career in an internal labor market with a port of entry connected to a rigidly structured and hierarchically ordered job ladder, he should stand at considerable advantage insofar as his probable subsequent socioeconomic

attainments are concerned. We are suggesting, then, that it is not so much characteristics of first jobs that are important for careers, as it is the internal labor market structure within which that first job is embedded. Given the oft-noted covariance between major features of internal labor markets and industry, this immediately suggests the role the latter might play in shaping careers.

C. Internal Labor Markets and Industries

An internal labor market is the institutional expression of constaints and planning considerations confronting organizations. Its major features are determined by the economic and social contexts within which firms operate. These include: level of technology (Edwards, 1975; Doeringer, 1967); product market characteristics, including degree of market power and profitability (Averitt, 1968); level of bureaucratization (Edwards, 1975); and custom (Doeringer, 1967). All these factors influence the desirability and feasibility to firms in using rigidly organized internal labor markets as a means for the progressive development of employee job skills (Doeringer and Piore, 1971) and as a mechanism of labor control (Edwards, 1975; D'Amico, 1978). All these factors, too, tend to covary with industry, a fact recognized and made use of by numerous researchers developing industrial segmentation schemes (e.g., Hodson, 1979; Beck, et al., 1978; Oster, 1979; D'Amico, 1980; Tolbert, et al., 1980; Bluestone, 1973). We acknowledge that multiple internal labor markets may exist within a single firm as well as within a single industry. Nonetheless, we argue that internal labor market types tend to be homogeneous within industries. On this score, Spilerman (1977;

579) writes: "Firms in the same industry are likely to have comparable technologies and organization forms and would be subject to identical fluctuations in demand for their products. For this reason much of the interfirm variation in career-line structures is likely to derive from industry differences." He concludes: "Career line features have a basis in industry organization...the industry entered by a young worker (thus) carries considerable consequence for the evolution of his earnings and status."

There is another aspect of industrial organization which impinges on the development of careers. Specifically, institutions differ in the extent and kinds of training opportunities they provide their workers. In this regard, Becker (1975) emphasizes the importance of distinguishing between general and specific skill development. The former refers to skills which enhance a worker's productivity in any number of institutional environments, while the latter refers to skills which are useful in a single firm only. Workers who procure general skills will find their future earnings potential incremented regardless of whether they stay with the same employer or switch firms. In either case, they should receive the full return on their acquired investment, since they bore the full costs of the training (Becker, 1975). By contrast, workers who acquire specific skills will not find their earnings enhanced by a corresponding amount. If they remain with the same employer, they receive only partial returns, since their employer is presumed to have borne some of the training costs; if they switch firms, they can expect no return on their investment, since their marginal productivity in their new employment situation is not enhanced by their previous skill acquisition.

Thus, workers should find their wages late in their careers affected by the particular mix of general and specific job skills which they previously acquired. Since the amount and kind of on-the-job training opportunities vary with industrial setting (Field, 1980), this is another reason why industry of career origins can be expected to impinge upon subsequent career success. Accordingly, after a description of the data, we will investigate the extent to which a worker's industry of first job is an important determinant of his subsequent socioeconomic attainments.

III. DATA AND METHODS

The data for this analysis are drawn from the National Longitudinal Surveys of the Labor Force Behavior of Mature Men. The sample consists of a nationally representative cohort of over 5,000 males aged 45-59 in 1966, the year of the first interview. Reinterviews were then attempted at annual or biannual intervals to the present. However, data for our study are drawn primarily from the first wave and our sample includes only those who were employed in that year. Sampling weights were used in all analyses to correct for the original oversampling of blacks. For further details on sampling procedures and questionnaire design, the reader should consult the National Longitudinal Surveys Handbook (1979).

Information on the respondents' career origins was developed from a question on the 1966 survey which asks, "Let's look back now to when you stopped going to school full time. I'd like to know about the first job at which you worked at least a month." Responses were coded into three-digit 1960 occupation and industry Census codes. In order to be sure that

this job represents a real career beginning for all respondents, and not a job in the "trail work stage" (Form and Miller, 1949), we made the further sample restriction that the worker's tenure with this first employer had to have lasted at least one year. On the one hand, by making this restriction we are allowing first job industry to have maximal impact on subsequent career development. At the same time, this limitation deletes from the sample those individuals who are likely to display the most erratic work histories. To the extent that such workers tend to be differentially located across first job industry categories and also have relatively low current earnings and occupational status, we are lessening the association between first job industry and subsequent socioeconomic success (see Ornstein, 1976 for a discussion of problems inherent in identifying first jobs).

Utilization of three-digit Census industry categories for coding first job industry produced too few respondents per category. To improve the stability of industry effects we aggregated three-digit industry codes to the two-digit level. This produced 43 industry categories. Three of these were deleted, because of their heterogenous nature (e.g., miscellaneous manufacturing). This left 40 first job industry categories, which form the basis of analyses to be described subsequently. These categories, and the number of respondents in each, are reported in Table 1.

The analytic strategy involves relating first job industry to various measures of socioeconomic success. Two outcome variables are employed. The first is the respondent's current job (1966) occupational position, coded in Duncan SEI scores (Duncan, 1961). The second dependent variable used

Table 1 First Job Industry Categories and Number of Respondents per Category[a]

Industry	N
Agriculture	1125
Forestry and fisheries	26
Mining	89
Construction	307
Manufacturing	
lumber and wood products	164
furniture and fixtures	21
stone, clay and glass	21
primary metal	52
fabricated metal	49
machinery, excluding electrical	48
electrical machinery and equipment	41
motor vehicles and equipment	22
other transportation equipment	28
professional and photographic equipment	14
food and kindred	136
textile mill products	55
apparel	30
printing and publishing	48
chemicals and allied	38
Railroads and railways	59
Other transportation	81
Communication	25
Other utilities	30

Table 1 (continued)

Industry	N
Wholesale trade	88
Eating and drinking places	57
Other retail trade	460
Banking and other finance	37
Insurance and real estate	39
Business services	18
Repair services	59
Private household	21
Other personal services	79
Entertainment and recreation	69
Medical, except hospitals	25
Hospitals	18
Welfare and religious services	21
Educational services	78
Postal service	9
Federal public administration	57
State and local public administration	18
Total	3662

[a]Ns are based on the unweighted sample after deleting cases missing on variables included in the SEI equation of Table 3.

is the respondent's reported income from wages and salary for 1966.[3]

In order to gauge the impact of career origins on workers' later career attainments, the most straightforward operational strategy would be to regress each of the outcome measures described above on suitable controls and a series of 39 dummy variables representing the 40 first job industry categories. One could then look at coefficients on each of the dummy variables to discern whether any net subgroup mean on the dependent variable differed significantly from the omitted category. Unfortunately this approach is not entirely satisfactory for our purposes. At least initially, we are less interested in knowing which of the industry categories are significant predictors of earnings or SEI than in knowing whether the broader concept of first job industry bears any relevance. In this regard, we need a single summary coefficient which adequately indicates the importance of first job industry relative to other variables in the equation. Heise's "sheaf coefficient" (Heise, 1972) provides just such a measure. Calculated by a straightforward formula using the coefficients of the dummy variables as well as their intercorrelations, the sheaf can be interpreted as a partial standardized regression coefficient. While there are several alternate strategies for assessing the conjoint importance of a group of dummy variables (e.g., Morgan, et al., 1962), all produce results quite similar to those generated by Heise's method.

The effects of first job industry are assessed in equations with appropriate controls for possibly confounding variables. Eight basic controls are used throughout. These are: RACE, a dummy variable coded 1 if the respondent was white, 0 otherwise; TENURE, the number of years he has worked

for his current employer; EDUC, years of schooling completed; AGE; AGESQ, age squared; SOUTH and SMSA, dummies for Southern residence and residence in an SMSA, respectively; and FJSEI, the Duncan SEI score of respondent's first job after completing school. Inclusion of this latter variable represents an effort to roughly control the occupational placement of respondent's first job.

A final set of control variables are included in the earnings equations only. These are 39 dummy variables representing the respondent's current job industry measured at the two-digit level. Inclusion of these variables was necessitated because of the well documented effect of (current) industry of employment on earnings (Stolzenberg, 1975; Wachtel and Betsey, 1972; Stafford, 1968), and because of the possible relationship of first job and current job industry placement. The effects of these dummies are also summarized as sheaf coefficients in tables reporting regression results. Means and standard deviations of all variables (except industry dummies) are reported in Table 2.

A final word of explication about the interpretation of the first job industry effect is in order. It should be emphasized that we are not trying to establish the importance of current job industry for socioeconomic attainments; this has been amply documented by others (e.g., Wachtel and Betsey, 1972; Bluestone, et al., 1973). Nor are we trying to establish the existence of industry differences in average starting salaries (see Ornstein, 1976 for a treatment of this issue). Recall that the dependent variables in our analyses are current (1966) attainments measured 25-40 years subsequent to career beginnings; thus, these models are designed to capture

Table 2 Means and Standard Deviations of Variables Used in Subsequent Regression Equations[a]

Variable	Symbol	Mean	Standard deviation
Years of education	EDUC	10.07	11.12
Race	RACE	.9048	.2935
Tenure on current job	CJTEN	14.62	11.12
SEI score of first job	FJSEI	24.66	20.50
Age	AGE	51.36	4.28
Age-squared	AGESQ	2656.48	442.73
Residence in South	SOUTH	.3163	.4651
Residence in SMSA	SMSA	.6778	.4674
SEI score of current job	CJSEI	35.95	24.28
Earnings on current job	EARN	7574.61	5124.72

[a]Means and standard deviations of all variables except EARN are ba ed on the weighted sample of all cases with nonmissing values on all variables included in Table 3.

the effects of first job industry for men late in their careers. As such, they are presumed to say something about the typical age-earnings profiles that emerge from these points of career origins, net of occupational placement of first job and other appropriate controls. Thus, an industry's current job and first job effects may or may not be of equivalent magnitude or sign. (This issue will be explicitly addressed later in the paper.)

VI. RESULTS

A. The Effects of First Job Industry on Current SES

Results from an estimation of the occupational SEI and earnings equations are presented in Table 3. Both equations support the hypotheses developed in this paper. Table 3 shows that net of other controls, the change between respondents' first job and current job occupational SEI score is significantly determined by first job industry. Moreover, the sheaf coefficient of .1989 ranks FJEF3[4] as one of the more important variables in the equation.

The results for the earnings equation tell much the same story. Net of the above controls plus current job industry placement, first job industry is a significant and strong determinant of current annual earnings. Moreover, the equations in Table 3 were re-run after omitting from the sample all first job and current job industry categories having less than twenty respondents. This was done to ensure that the values of the sheafs are not being unduly influenced by outliers in a few small industry categories, which might be wildly inflating the values of the affected dummy variable regression coefficients. Results remain essentially unchanged with this universe restriction implemented. These results, then, support

Table 3 Regression Results for CJSEI and EARN Equations

Independent variable	Dependent variable: CJSEI	Dependent variable: EARN
EDUC	.3558*	.2324*
RACE	.0856*	.0550*
CJTEN	.0391*	.1590*
FJSEI	.2531*	.2307*
AGE	.1116	-.1051
AGESQ	-.1244	.0860
SOUTH	.0778*	-.0276*
SMSA	.0665*	.0868*
FJEF3[a]	.1989*	.1500*
CJEF3[a]		.2631*
Adj. R^2	.4687	.3590
N	3662	2704

NOTE: Figures are standardized regression coefficients. Since unstandardized sheaf coefficients have no obvious meaning, metric effects are not reported.

[a]See footnote 4.

*Indicates significance at the .01 level. Significance tests for FJEF and CJEF are based on increment to R^2 when all other variables are in the equation. The formula used here, and suggested by Heise, is:

$$\frac{N-k-1}{k-h} * \frac{R_k^2-R_h^2}{1-R_k^2}$$

where N is number of cases, k is the total number of variables including the dummies for the variable whose effect is being tested, h is the number of dummies for the variable being tested, R_k^2 is the R^2 with all variables included and R_k^2 is the R^2 without the dummies added.

the notion that the contextual effect of industry of career origins has pervasive effects on socioeconomic attainments even decades later.

B. Results for Movers Only

The strength of these results seems quite impressive. We must be cautious in lending them interpretation, however. One possibility may be that the sheaf coefficients in the earnings equations are artifically inflated due to multicollinearity between the first job and current job industry dummies. In particular, if there is limited mobility out of first job industry categories, then many respondents would be coded identically on the set of first job and current job industry variables. Since it is well known that multi-collinearity can produce inflated estimates of regression coefficients (Mason, et al., 1975), this may partly account for the size of the sheafs reported in Table 3 and may make our interpretation of these results problematic.

To explore this possibility, Table 4 reports results of a reestimation of the earnings equation for "movers" only, i.e., those whose current job and first job two-digit industry codes differ. For comparison, a re-analysis of the current job SEI equation, with this sample restriction is also presented. These results show no substantial degradation in the effects of first job industry in either case.

C. Results for Respondents not in Agriculture

One other possibility that would dictate a tempering of the importance we attach to first job industry would occur if these results were driven by the importance of just one (or a few) first job industry categories.

Table 4 Regression Results for CJSEI and EARN Equations for Movers Only

Independent variable	Dependent variable CJSEI	EARN
EDUC	.4015*	.2506*
RACE	.1068*	.0562*
CJTEN	.0909*	.1888*
FJSEI	.1870*	.1663
AGE	-.2029	-.3822
AGESQ	.1810	.3593
SOUTH	.0731*	-.0485*
SMSA	.0397*	.0876*
FJEF4	.1774*	.1667*
CJEF4		.2479*
R^2	.3772	.3224
N	2669	2084

NOTE: See notesto Table 3.

*Indicates significance at the .01 level. See Note to Table 3.

Agriculture seems the most likely candidate in this regard. Weighted sample estimates show that over 27 percent of the sample's respondents named agriculture as their industry of career origin. Given that only 5 percent of the respondents named this category as their current job industry, this implies a structural shift of employment opportunities away from the primary sector. (This, of course, is a well-documented historical occurrence. Both the 27 percent and 5 percent figures compare favorabley with Census estimates for the relevant time periods. (See, for example, Statistical Abstract, 1979). In any case, it is possible that the restricted alternative employment opportunities in rural areas may have resulted in depressed socioeconomic attainments for these individuals. This occurrence alone, then, may largely be accounting for the importance of first job industry displayed in the preceding tables.

Table 5 explores this possibility. This reports results of occupational SEI and earnings equations estimated for respondents who reported neither agriculture nor forestry and fisheries as their first job industry. In each case our conclusions remain unchanged. First job industry remains a significant and strong predictor of both earnings and occupational placement.

D. Direct and Total Effects of First Job Industry

The preceding analysis provide reasonably convincing evidence for the importance of career line concepts for understanding socioeconomic attainments. To further explicate these effects, this section explores the relationship between first job and current job industry.

Table 5 Regression Results for CJSEI and EARN Equations for Respondents not in First Job Industry Agriculture or Forestry

Independent variable	Dependent variable CJSEI	EARN
EDUC	.3857*	.2564*
RACE	.1010*	.0580*
CJTEN	.0913*	.1741*
FJSEI	.2574*	.2182*
AGE	-.2390	-.3641
AGESQ	.2256	.3492
SOUTH	.0730*	-.0139
SMSA	.0580*	.0975*
FJEF5	.1830*	. *
CJEF5		.2360
R^2	.4525	.3030
N	2511	1934

NOTE: See notes to Table 3.

*Denotes significance at the .01 level. See note to Table 3.

If we conceptualize careers as constituting flows through institutional structures, then the pattern of these flows is of paramount interest. We have already established that first job industry is an important determinant of subsequent economic success. But these effects were calculated net of current job industry. To the extent that high-wage (on the current job) first job industries channel workers into high-paying current job industries, we may thereby be understating the total effects of first job industry.

Table 6 evaluates this possibility by reporting the total and direct effects of first job industry on earnings (total effects are defined as the effect of first job industry with current job industry omitted from the regression equation; the direct effect is just the result from Table 3 repeated here). Contrasting the first job industry sheafs for columns 1 and 2, note that the exclusion of current job industry only very modestly increases the magnitude of the first job industry effect. This is surprising since it suggests that the linkage between the earnings potential of first job and current job industry placement are quite weak.

Moreover, the very modest indirect effect of first job industry seems to be entirely caused by the immobility of some workers in industries which have consistently positive (or negative) first job and current job industry effects. As Table 7 shows, the total and direct effects of first job industry are nearly identical when the sample is restricted to "movers" only (i.e., those whose first job industry is different from their current job industry).

E. Relation Between First Job and Current Job Industry Effects

This finding suggests that the ways in which industry impacts on career

Table 6 Direct and Total Effects of First Job Industry for EARN Equations for the Total Sample

Independent variable	Dependent variable EARN	EARN
EDUC	.2456*	.2324*
RACE	.0605*	.0550*
CJTEN	.1639*	.1590*
FJSEI	.2389*	.2307*
AGE	.0484	-.1051
AGESQ	-.0791	.0860
SOUTH	-.0295*	-.0276*
SMSA	.1136*	.0868*
FJEF6	.1686*	.1500*
CJEF6		.2631*
Adj. R^2	.3082	.3590
N	2704	2704

Note: See notes to Table 3.

*Indicates significance at the .01 level. See notes to Table 3.

Table 7 Direct and Total Effects of First Job Industry for EARN Equations for Movers Only

Independent variable	Dependent variable EARN	EARN
EDUC	.2610*	.2506*
RACE	.0614*	.0562*
CJTEN	.2025*	.1888*
FJSEI	.1862*	.1663*
AGE	-.3674	-.3822
AGESQ	.3375	.3593
SOUTH	-.0563*	-.0495*
SMSA	.1061*	.0876*
FJEF7	.1610*	.1667*
CJEF7		.2479*
Adj. R^2	.2766	.3224
N	2669	2669

NOTE: See notes to Table 3.

*Indicates significance at the .01 level. See notes to Table 3.

development is not straightforward. It seems that career streams do not operate to channel workers into consistently (dis)advantageous institutional environments. We had argued that industries with well-developed internal labor markets would "mesh" with each other quite closely, offering workers an uninterrupted and hierarchical career progression. But if this is the case, then the above results imply that industries providing strong job ladders are not also generally high-wage (current job) industries.

This is at odds with previously advanced speculations on the nature of industrial work organization. Dualists, for example, suggest that high-wage industries are also likely to be the ones that have the most highly developed internal labor markets and offer the most in terms of career opportunities (Edwards, 1975; Doeringer and Piore, 1971). This section attempts to examine this contention more directly by examining the correspondence between first job and current job industry effects at the industry level.

Unfortunately, these data are not entirely suited for examining this contention. The first job industry effects capture the impact of an industrial structure that existed four or more decades ago. Thus, if change occurred in the character of individual industries in the ensuing years, the current job industry effects may be measuring the effects of industries that look very different than they once did. To circumvent this difficulty, we would ideally like to be able to assess current job industry effects contemporaneously with the period these respondents' first jobs began.

In the absence of data of this sort, we present Table 8 which records first job and current job subgroup mean industry deviations from the grand

Table 8 First Job and Current Job Industry Adjusted Deviations from Mean Earnings in Dollars (N=2704)

Industry category	First job deviation	Current job deviation
Agriculture	44.82	-3434.08
Forestry and fisheries	-323.42	(1)
Mining	-734.91	1974.92
Construction	327.21	314.68
Manufacturing industries:		
Lumber and wood products	111.52	-347.91
Furniture and fixtures	(1)	-460.33
Stone, clay and glass	(1)	101.35
Primary metal	1096.02	291.02
Fabricated metal	-514.18	364.94
Machinery, excluding electrical	-247.80	1333.23
Electrical machinery and equipment	456.22	1797.22
Motor vehicle and equipment	-158.03	325.96
Other transportation equipment	502.67	546.03
Professional and photo. equipment	(1)	(1)
Food and kindred	-289.44	-199.21
Textile mill products	135.83	2911.81
Apparel	601.32	(1)
Printing and publishing	1001.33	557.99
Chemicals and allied	1607.03	441.81
Railroads and railways	255.78	-544.77
Other transportation	4.36	422.89
Communication	(1)	(1)

Table 8 (continued)

Industry category	First job deviation	Current job deviation
Other utilities	-4.22	389.44
Wholesale trade	-1030.78	807.27
Retail eating and drinking	2281.98	-929.77
Other retail trade	-379.63	-502.33
Banking and other finance	538.98	703.47
Insurance and real estate	-1174.35	3591.99
Business services	(1)	327.54
Repair services	926.57	-2257.15
Private household workers	(1)	(1)
Other personal services	-286.43	-2507.11
Entertainment and recreation	-1091.05	(1)
Medical services, excluding hospitals	(1)	(1)
Hospitals	(1)	-1781.66
Welfare and religious services	(1)	-1771.48
Educational services	422.29	-1324.86
Postal services	(1)	-1031.53
Federal public administration	228.49	928.95
State public administration	(1)	-994.55
Local public administration	(1)	-417.09

NOTE: (1) indicates less than 20 respondents in this category; deviation not shown. See footnote 5 for an explanation of the computation of these figures.

mean, adjusted for all other independent variables included in Table 3.[5] Note that, of the twenty-six industries for which a comparison between first job and current job industry effects can be made, 13 have effects which are of the same sign. The remaining half, then, show a pattern of either positive first job industry effects and negative current job effects, or vice versa. Indeed, the Pearson correlation of first job and current job industry effects computed across the 40 industries is approximately zero!

It is difficult to know, on the basis of these data, to what degree the noncongruence between first job and current job industry effects represents an historical shift in the character of some industry categories. Undoubtedly, however, this plays a large role. To be sure, Taylorism and other principles of "scientific management" usually associated with the rise of internal labor markets were introduced as early as the late nineteenth century (Stone, 1975). But the scientific-technological revolution of the last several decades, the emergence of free-flow or process production, and the re-direction of growth from the secondary to the tertiary sector has radically transformed the American industryal structure from the early decades of this century. Indeed, Braverman (1974) points out that it is precisely the high-wage industries that have been the most stagnant--and thereby offered the most limited career opportunities--in recent years. These considerations suggest that the implications for subsequent career developments of many specific industry categories for new cohorts of labor force entrants might be very different from that indicated by Table 3 for this sample of older men.

Apart from this, the discrepancy between first job and current job industry effects may also have a substantive interpretation. It suggests that some industries may be generally high paying and yet not be particularly good places in which to start a career. This might be the case, for example, for industries in which unions constitute a strong enough bargaining agent to drive wages up, even while the industry itself provides little in the way of promotional opportunities or transferrable skills. Table 8 suggests that mining may provide an instance of this. By contrast, some generally low-paying industries may provide skills or other opportunities which lead the age-earnings profiles of the career paths emanating from them to have a fairly steep gradient. Educational Services may best exemplify this pattern. In any case, the results of Table 8 suggest that the ways in which industrial structures impact on career patterns and labor market success are not straightforward and cannot simply be characterized as providing "good" or "bad" socioeconomic opportunities for workers.

F. Determinants of First Job Industry Effects

The final empirical section of this paper makes a tentative effort to identify the institutional characteristics of industries which are conducive to the development of subsequently lucrative careers. We have argued that first job industry effects exist because of internal labor market features planning considerations confronting industry. This section attempts to identify what it is about industries that imparts character to internal labor markets.

An empirical exercise of this sort is severely hampered by rather extreme data limitations. Measurement of industry characteristics must be roughly

contemporaneous with when the sample respondents were first entering the labor force. Since they are 45 to 59 years old (in 1966), this necessitates collecting data that reflect the character of industries fifty or more years ago. Unfortunately, industry data for this time period are spotty, inconsistent across indistries in variable definition, and in general of questionable reliability. Nonetheless, we have succeeded in coding several items which we believe capture inter-industry variation in labor market structure and promotional opportunities. These are level of bureaucratization and industry growth rate.

Degree of bureaucratization as a characteristic of industry organization may be especially important in this regard. Bureaucratic firms tend to be characterized by a multi-layered, hierarchically ordered array of job positions, usually with codified rules regarding the movement of workers throughout this structure (Edwards, 1975; Stolzenberg, 1978; see Stone, 1975 for an example of this in the steel industry). This is just the situation in which internal labor markets are most likely to be found.

Secondly, industry growth rates are also assumed to be important. An industry which is expanding offers its workers an improved opportunity structure, while workers in industries in decline are more likely to experience a curtailment of promotion possibilities.

A final variable considered is the differential ability of industries to bind workers to their employers. We speculate that orderly career progressions are more likely to be found where employer shifts are less frequent on the grounds that workers who shift employers repeatedly cannot accumulate enough seniority to advance up job hierarchies. This variable is measured

from an item on the NLS survey which asks respondents their tenure on their first job (FJTEN). Level of bureaucratization is operationalized as the ratio of nonsupervisory or production workers to total employees of the industry (NONPROD; actually, lower values on this variable would imply higher levels of bureaucratization). GRWA and GRWB are the proportional industry growth rates for the periods 1920-1930 and 1930-1940, respectively. They are operationalized as: (total employment at t_2 - total employment at t_1)/total employment at t_1. Both the growth rate variables as well as NONPROD are coded from items in the Historical Statistics of the United States. It should be reiterated that these data are of questionable reliability due to inter-industry differences in variable definition. Moreover, after deleting cases with missing values only 13 industries remain in the analysis. Accordingly, these results must be considered tentative at best.

As Table 9 shows, each of these explanatory variables is significant, though FJTEN has the opposite sign than predicted. The positive coefficients of the two growth rate variables thus suggest that expanding industries offer improved opportunities for career advancement. Similarly, the inverse relationship between NONPROD and first job industry wage effects suggests that industries with well-developed administrative apparatus (our measure of complexity of the internal labor market structure) facilitate the development of orderly careers. While measurement difficulties preclude our making too much of this, it nonetheless suggests an extension of Stolzenberg's (1978) finding that level of bureaucratization has important implications for labor market processes. Finally, we may speculate that the negative effects of FJTEN represent an effect similar to the previously noted

Table 9 The Determinants of First Job Industry Effects (N=41 industries)

Independent variable	b	B
NONPROD	-3489.26*	-.3765
GRWA	1304.16*	.4063
GRWB	1444.14*	.6174
FJTEN	-261.36*	-.5939
N	13	
R^2	.125	
Constant	4228.52	

*Indicates significance at the .1 level.

(Parnes and Nestel, 1974) advantageous consequences of voluntary mobility for workers' economic achievements. In any case, data limitations preclude our going much beyond these very tentative observations.

V. CONCLUSIONS AND DISCUSSION

We began this paper by arguing that internal labor market structures can be juxtaposed with career-line concepts to provide a useful framework for the analysis of socioeconomic attainments. Indeed, the interplay between features of internal labor markets and career paths may constitute a critical nexus within which the impact of institutional structures on career developments can perhaps most fruitfully be examined.

Adopting this framework, we argued that the internal labor market structure within which respondents' first jobs are embedded should have pervasive and largely irrevocable effects on subsequent career development. Since the planning considerations confronting organizations largely vary by industry designation, it seeme appropriate to investigate these issues by observing the relationship between respondents' first job industry and earnings and occupational SEI attainments late in their careers. Investigating this issue, we found significant and strong effects of first job industry on each of these outcome measures. Moreover, these findings proved to be remarkably robust and persisted despite alternate universe restrictions.

But while the importance of first job industry seems reasonably certain, we had only limited success in explaining these findings. Measures of bureaucratization, industry growth rates, and mean first job tenure of employees proved to be relatively poor determinants of the magnitude of

first job industry effects. Moreover, a comparison of first job and current job industry effects for each industry category revealed remarkably little congruence. This suggests that the ways in which institutions impact on careers is complex, and is not adequately conceptualized by a model which posits that institutional environments are either consistently favorable or unfavorable in their impact on careers.

The complexity of institutional effects on career development is underscored in other ways as well. The models which we have estimated must be deemed extremely simplistic, in that they ignore a number of interactions which almost certainly exist. First, whether a given first job industry can be expected to have favorable or unfavorable effects on the subsequent career development of some individual no doubt is contingent to some degree on what his terminal and intervening industries of employment were, as well as the timing of the inter-industry job transitions. The effect of first job employment in educational services, for example, likely depends on whether the worker subsequently found employment in the federal government or in food manufacturing, and whether the job change was made in his early, mid, or late career.

Similarly, first job industry effects also likely vary for workers at different occupational levels. Stolzenberg (1975), for example, already found that the effects of current job industry vary by occupational category, and there is no reason to suppose that the same cannot also be said of first job industry effects. Indeed, Table 10 contrasts first job industry subgroup mean deviations for white and blue collar workers and substantial discrepancies emerge.

Table 10 Adjusted Subgroup Mean Deviations on Earnings for First Job Industry Categories for White and Blue Collar Workers

Industry	Adjusted deviation White collar (N=753)	Blue collar (N=1550)
Agriculture	281.50	-173.38
Construction	471.81	159.77
Manufacturing industries		
Machinery, excluding electrical	339.95	-292.35
Food and kindred	-1337.60	540.92
Other transportation	-703.42	197.84
Wholesale trade	-2819.14	-139.42
Other retail trade	-296.45	-36.71

NOTE: Subgroup mean deviations are shown for only those first job industry categories that have more than 20 white collar and 20 blue collar respondents. Ideally, we would have preferred to use a finer occupational breakdown than the white collar/blue collar dichotomy, but sample size limitations preclude this as a possibility.

Despite these limitations--indeed, perhaps because of them--the effects we observe are all the more dramatic. We have established the important role that institutions play in shaping careers, even decades after workers have moved on to a new internal labor market setting. Just as importantly, however, we have hopefully helped establish the integrity of using industry data in labor market analyses. Several researchers have recently suggested that the firm is really the level at which institutional effects on labor market outcomes should be studied, and that industry-level analyses are either inappropriate or second-best (e.g., Baron and Bielby, 1980). As general statements, these assertions seem unwarranted. If sociological theory proceeds by abstraction, then production and product market characteristics influencing labor market organization can be thought of as operating at the industry-level. Moreover, the existence of wage comparisons, notions of equity, pattern bargaining, and union efforts to equalize wages across firms can all be thought of as part of the "centripetal" forces which Ross (1957) identifies as constituting pressure towards equalizing labor market structures across firms. Of course, this is not to suggest that industries are internally homogeneous. Indeed, intra-industry heterogeneity is extensive, is structurally induced and certainly constitutes a legitimate focus of sociological analysis. At the same time, we can proceed with research utilizing industry-level data not because comparable firm-level information is unavailable, but because industry constitutes a meaningful level of aggregation.

Footnotes

[1]Though, of course, workers in different occupational positions may be differentially affected (Stolzenberg, 1975).

[2]Some researchers (e.g., Althauser and Kalleberg;) diverge from Doeringer and Piore's usage and define internal labor markets very much the way we have defined career paths in this paper. One might wonder in such cases exactly what an internal labor market is internal to.

[3]This variable was picked up from the 1967 interview schedule and represents income from wages and salary for the preceding calendar year.

[4]First job and current job industry sheaf coefficients are denoted as FJEF and CJEF, respectively. A numerical suffix is appended to these variable names corresponding to the table to which they apply.

[5]In particular, first job industry adjusted deviations were computed by computing a predicted earnings for each first job industry category and subtracting from it the grand mean. Predicted earnings were computed by using the metric coefficients from the earnings equation reported in Table 3 and using mean values for all control variables in the equation, including current job industry. An analagous procedure was used to calculate current job industry adjusted mean deviations.

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